

Aerial Lift/ Bucket Truck Hazard Alert

**For Public Works
Employers and
Employees In
Massachusetts**



**Executive Office of Labor
and Workforce Development
Department of Labor Standards**

Introduction

Workers are killed and seriously injured each year conducting work from aerial lifts. Eighty percent of deaths from vehicle mounted elevated platforms resulted from contact with electrical sources. Municipal public works employees conduct a significant amount



of work in aerial lifts, including hanging holiday decorations, trimming trees and shrubs, changing street light bulbs, painting and maintenance. It has been found that municipal workers in Massachusetts often do not have the necessary equipment or training to work safely on aerial lifts. Training in the proper use of aerial lift equipment, fall protection and work zone safety are critical in preventing death or injury when working from a mobile elevated work platform.

What are the Hazards When Working in Aerial Lifts?

- Electrocutions when contacting overhead power lines
- Injuries and fatalities from lifts due to working without a fall restraint or falling protection system
- Slips and falls caused by improper use of bucket side rails, ladders or planks for additional reach
- Injuries and fatalities due to overturned lifts or trucks when the vehicle is set on unstable ground
- Falls from buckets when passing vehicle traffic hits the lift or truck due to improper work zone setup

How are Workers Put at Risk?

Public works employees who use aerial lifts or bucket trucks may encounter electrical hazards when working near overhead power lines. Risk of serious injury is amplified if workers do not recognize these potential hazards, and fail to operate their equipment effectively to avoid accidental contact with any energized sources. Public works employees frequently work in lifts and bucket trucks in close proximity to motor vehicle traffic. When an adequate safe work zone is not sufficiently demarcated, workers are at risk for struck-by accidents, including vehicle overturn or collision. Workers who are not provided with, or who do not use, the proper fall protection are at risk of fatal injury. Operators who have not been thoroughly trained on the proper setup and who do not understand the safe operation of the equipment are at risk.

What are the Key Safety Procedures That Should Be Followed When Working in Aerial Lifts?

- Survey the work area for potential hazards such as overhead electrical lines.
- Maintain a minimum clearance of at least 10 feet from overhead power lines.
- Use proper fall restraint or fall protection (see section on fall protection).
- Never operate aerial lift equipment without adequate, hands on training. If you are renting equipment, be sure that the rental company provides hands on training as part of the rental.
- Inspect the equipment daily to ensure the structural and mechanical integrity.
- Keep the equipment and controls clean, free of dirt, oil and other contaminants.
- **Never** move the lift truck with the boom elevated or with workers in the bucket.
- Park the vehicle with the flow of traffic, engage beacons, set brakes and chock the wheels.
- Set up a work zone that isolates the vehicle from traffic. Provide sufficient clearance for the extension of the boom. (See section on work zone safety)
- Fully engage outriggers and pads to stabilize the vehicle; avoid slopes, potholes and soft earth.
- Do not exceed the load limits of the equipment, including workers, tools and materials.

Do I Need Fall Protection When Working on Aerial Lifts/Bucket Trucks?

All workers must be protected from falls when working on aerial lifts. Workers must be trained on how to correctly use any fall protection and/or safety equipment they are issued. There are **two** types of safety/fall protection systems that can be used. These recommendations are based on the OSHA Standard 1926.453.

Option One-Restraint Systems

A restraint system consists of a body belt or harness, lanyard and anchor. The system is arranged so that the worker is prevented from falling any distance. Restraint systems are the preferred method of



protection since a restraint system keeps the worker in the bucket and prevents the worker from being exposed to **any** fall. If the employee is protected by a restraint system, either a body belt or a harness may be used, although harnesses are preferred. The lanyard must be no more than 2 feet long and the anchor must be attached to the boom or bucket. Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position. Snaphooks must be locking type and all lanyards, belts or harnesses must be made of synthetic material and be in good condition. All D-rings, snaphooks and anchorage points shall have a minimum tensile strength of 5,000 pounds and anchorage points must be designed to withstand the load with a minimum tensile load of 3,000 pounds. Check with the bucket truck manufacturer for further information.

Option Two-Fall Arrest Systems

A system that exposes a worker to a fall, but stops the fall within specified parameters, is a personal fall arrest system. Fall arrest systems require the use of a body harness. **BODY BELTS ARE NOT PERMITTED WITH THIS TYPE OF SYSTEM.** Snaphooks must be locking type and all lanyards and harnesses must be made of synthetic material and be in good condition. A fall arrest system can only be used where the bucket truck or scaffold is designed to withstand the vertical and lateral loads caused by an arrested fall-usually 5000 pounds. Check with the truck manufacturer for the appropriate anchorage point location. Many lifts cannot support this type of load, therefore restraint systems would have to be used.



Personal fall arrest systems must limit falls to no more than 6 feet and must limit the arresting force on an employee to 1800 pounds. Full body harnesses with a shock absorbing lanyard are preferred if fall arrest systems are used. However, you must be careful to determine the height of the lift and use the proper lanyard length that limits the fall so that the worker cannot hit the ground.

Fall protection must be inspected prior to each use, and must be in good working condition. Equipment that has been involved in a fall must be taken out of service

Personal Protective Equipment

Appropriate personal protective equipment such as hardhats, gloves, work boots, eye and hearing protection must be worn according to the work being done. Hardhats with electrical protection must be chosen when working near power lines. Gloves for protection against electricity, cuts, or chemicals may be required. Non-slip boots should be worn in all situations to minimize the potential for slips and falls. Eye protection is required when workers are exposed to flying particles or chemicals. Hearing protection may be required when working with noisy equipment such as chainsaws.



An Important Note about Work Zone Setup for Aerial Lifts!

There have been several incidents in Massachusetts where the boom of the buckets extended into the roadway and were struck by passing trucks. This led to workers being thrown to the ground because they were not wearing appropriate fall protection devices. Cones must extend an ample distance from the truck to ensure that traffic is directed far enough away from the boom to avoid struck-by accidents. Fall protection will prevent the workers from being ejected from the bucket in the event of an accidental strike. Work zones must be set up in accordance with the **Manual on Uniform Traffic Control Devices (MUTCD)**. Towns should have a formal policy requiring a competent person trained in the MUTCD to make the decision on the set up of these zones and determine whether a flagger or police detail is necessary. Signs warning of a work zone ahead may be required up



to 500 feet before the work zone, depending on the roadway. Employees working in work zones need to wear appropriate retro-reflective work vests.

A link to the MUTCD and to a work zone safety bulletin is given below. Free work zone safety training is currently available to municipalities through the University of Massachusetts at Lowell. Contact David Coffey, Training Manager, at 978-934-3296 for further information.

Who Monitors the Health and Safety for Public Workers in Massachusetts?

While the private sector employees are covered by Federal OSHA, public sector employees in Massachusetts are not. The Massachusetts Department of Labor Standards (DLS), in accordance with Chapter 149 section 6, is charged with inspecting public sector workplaces in Massachusetts and determining what procedures and practices are required to protect workers. As a matter of policy, DLS references OSHA Standards as well as other consensus standards in determining whether adequate worker protection procedures are being implemented and followed.

Applicable Consensus Standards and Regulations

ANSI A92.2 "The American National Standard for Vehicle Mounted Elevating and Rotating Aerial Devices"

ANSI/SIA A92.3 "Manually Propelled Elevating Aerial Platforms"

ANSI/SIA A92.5 "The American National Standard for Boom Supported Elevating Work Platforms"

ANSI/SIA A92.6 "The American National Standard for Self Propelled Elevating Work Platforms"

OSHA 29 CFR 1926.453 "Aerial Lifts"

Where Can I Get More Information?

The Massachusetts Department of Labor Standards (DLS) Workplace Safety Program offers many FREE training sessions on a variety of health and safety topics. DLS often works in partnership with other state and federal agencies to provide health and safety training to municipal employees. There are many training materials and publications available on line.

Useful Links

Links on Aerial Lifts:

www.elcosh.org/en/document/585/d000564/hazard-alert-aerial-lift-safety.html

www.cpwr.com/hazpdfs/hazaeriallifts.pdf

Links on Fall Protection:

www.osha.gov/SLTC/fallprotection/index.html

www.ccohs.ca/oshanswers/prevention/ppe/belts.html

www.cdc.gov/niosh/90-100.html

www.orosha.org/publications/fallpubs.html

Links on Work Zone Safety:

www.mutcd.fhwa.dot.gov/res-notices.htm

www.mass.gov/Elwd/docs/dols/mwshp/hib408.pdf

www.workzonesafety.org

www.cdc.gov/niosh/topics/highwayworkzones/

www.osha.gov/OshDoc/data_Hurricane_Facts/work_zone_safety.pdf

www.ncdot.org/doh/safety/workzone

<http://ops.fhwa.dot.gov/wz/practices/best/bestpractices.htm>

www.osha.gov/SLTC/emergencypreparedness/workzone_traffic.html

Links on Safety Vests:

www.atssa.com

www.nhtsa.dot.gov/



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